

**Claims**

1. A method of isolating and culturing mesenchymal stem cells from cryopreserved umbilical cord blood, comprising the steps of:
  - 5        thawing cryopreserved umbilical cord blood and adding  $\alpha$ MEM (alpha-minimum essential medium) thereto, followed by centrifugation to harvest monocytes;
  - isolating CD133 positive cells from the obtained monocytes; and
  - subjecting the isolated cells into suspension culture in the  $\alpha$ MEM
  - 10        containing Stem Cell Factor, GM-CSF (granulocyte-macrophage colony-stimulating factor), G-CSF (granulocyte colony-stimulating factor), IL-3 (interleukin-3) and IL-6 (interleukin-6).
2. The method as set forth in claim 1, wherein the umbilical cord blood
- 15        is added with 2-fold volume of the  $\alpha$ MEM, overlapped on Ficoll-Hypaque, and then subjected to centrifugation to harvest monocytes.
3. The method as set forth in claim 1, wherein the  $\alpha$ MEM for culturing monocytes further comprises an antibiotic, an anti-fungal agent, glutamine and
- 20        fetal bovine serum.